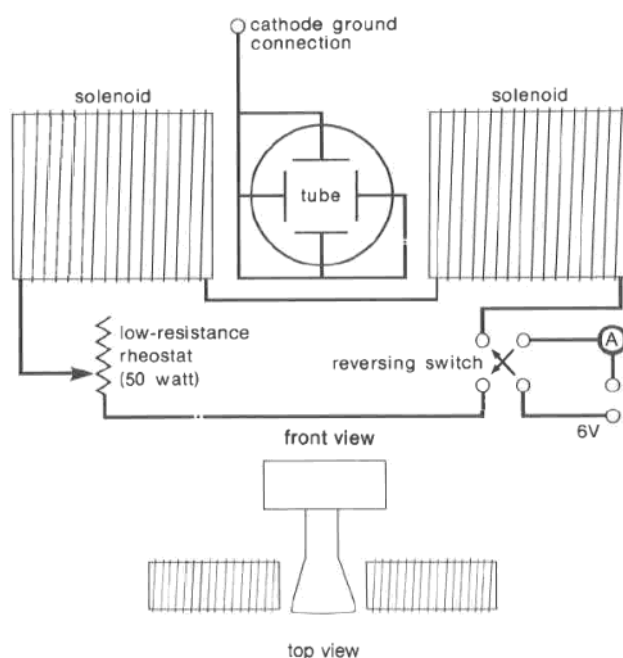


## Part 1: Magnetic fields lab manual p93

Set up solenoids on either side of the cathode ray tube

#050 Apparatus for using a magnetic field to deflect an electron beam



Place a compass at the cathode tube.

Predict the direction the compass will point and the electron beam will deflect.

Vary current, measure deflection, minimum 5 values

I(A)	0					
D(cm)	0					

Graph D vs I

- At 2.0cm deflection, change  $V_a$  from 500V to

600V and 700V and describe change

## Part2 Magnet, solenoid and galvanometer

Predict and observe the direction and magnitude of the current in a galvanometer connected to a solenoid when you move a magnet in various ways.

Prediction:

Observation:

## Part 3: motor

Connect terminals to galvanometer **AND NOT THE POWER SUPPLY** and turn the armature. Describe

Disconnect galvanometer, connect power supply and ammeter.

Determine  $r$  of the armature =  $V/I$  with spool held.  
 $V$  \_\_\_\_\_  $I$  \_\_\_\_\_  $r =$  

Determine  $r$  of the armature =  $v/I$  with speed held.

V \_\_\_\_\_ I \_\_\_\_\_  $r =$  

Measure V, I and t for  $d=1.0\text{m}$

V power supply (V)	I current (A)	t time to go 1.0 m (s)	Vback = $V - Ir$

Graph back emf vs velocity.

Part 4: optional

If time permits - build a monopole motor using wire, magnet and AA battery.

<https://www.youtube.com/watch?v=iG0pzGcy4xU>